

Appl. No. : 10/800,189
Filed : March 12, 2004

IN THE SPECIFICATION:

Please amend the specification as follows:

(1) The paragraph [0002] from page 1, line 14 to page 1, line 19 has been amended as follows:

[0002] The present invention relates to a testing apparatus. More particularly, the present invention relates to structures of a board, generally called a performance board, a probe card or a socket ~~board~~ board for mounting a device under test ("DUT") and a connection unit for connecting the DUT mounting board and the body of the testing apparatus.

(2) The paragraph [0004] from page 1, line 24 to page 1, line 28 has been amended as follows:

[0004] In large, the IC testing apparatus includes a main frame 1, a test head 2 and a DUT interface part 3. The main frame and the test head 2 are connected ~~be~~ by a cable 4, and the DUT interface part 3 is mounted on and connected to the test head 2.

(3) The paragraph [0005] from page 1, line 29 to page 2, line 2 has been amended as follows:

[0005] In this example, the DUT interface part 3 includes, for example, a substrate 11, a motherboard 10 provided with a plurality (e.g. thousands) of cables 12 ("a motherboard unit"), a DUT mounting board 20 generally called a performance board, and an IC socket 320. The substrate 11 is provided

Appl. No. : 10/800,189
Filed : March 12, 2004

with a connector (not shown) for connecting to the test head 2 on its lower surface.

(4) The paragraph [0006] from page 2, line 3 to page 2, line 9 has been amended as follows:

[0006] The lower end of the cable 12 is soldered on or connected via the connector to the substrate 11, and the upper end of the cable 12 is connected to the DUT mounting board 20 via a connector (not shown), etc. In this example, one IC socket ~~32~~ 320 is mounted on the DUT mounting board ~~4~~ 20. As shown in Fig. 14, there is shown DUT (IC under test) 40 mounted on the IC socket 320. Further, there is also shown a cover 13 which covers the cable 12.

(5) The paragraph [0007] from page 2, line 10 to page 2, line 14 has been amended as follows:

[0007] Fig. 15 shows a conventional structure of DUT mounting board 20 according to the above structured IC testing apparatus and a schematic connection relationship between the DUT 40 and ~~the~~ a connector 15 (on the upper end of the cable 12) in regard to the DUT mounting board 20, where the IC socket 320 is omitted.

(6) The paragraph [0007] from page 2, line 19 to page 2, line 29 has been amended as follows:

[0009] Through holes 23 are formed on the corresponding electrode pads 21 and 22 on the upper and lower ~~surface~~ surfaces of the board 20. The through holes 23 are connected

Appl. No. : 10/800,189
Filed : March 12, 2004

with internal layer wiring patterns 24. In other words, the conventional DUT mounting board has a structure of a multilayer printed circuit board using through holes 23 for connecting the electrode pads 21 and 22 with the internal layer wiring patterns 24. See, for example, in an article of "Build-Up Multilayer Printed Wiring Board Technology", Page 7 to 8, written by Kiyoshi Takagi, published by Nikkan-Kogyo Newspaper, Inc., June ~~20-2000~~ 20, 2000. Arrows in Fig. 14 show flows of electrical signals.

(7) The paragraph [0012] from page 3, line 8 to page 3, line 15 has been amended as follows:

[0012] In other words, as designated by dashed line in Fig. 15, since a stub part 25 (hereinafter, parts unnecessary for transmission lines are called stub ~~parts~~ parts) for the through hole 23 is large (or long), capacitance of this stub part 25 becomes a problem of ~~generating~~ producing waveform distortion and capacitive reflection, which cause deterioration of signal quality (or waveform quality). Therefore, the conventional DUT mounting board 20 has a problem of not coping with high speed signals.

(8) The paragraph [0018] from page 4, line 29 to page 5, line 5 has been amended as follows:

[0018] Therefore, it is an object of the present invention to provide a connection unit, a DUT mounting board, a probe card and a device interface part, which ~~is~~ are capable of

Appl. No. : 10/800,189
Filed : March 12, 2004

overcoming the above drawbacks ~~accompanying~~ accompanied by the conventional art. The above and other objects can be achieved by combinations described in the independent claims. The dependent claims define further advantageous and exemplary combinations of the present invention.

(9) The paragraph [0048] from page 13, line 7 to page 13, line 8 has been amended as follows:

[0048] ~~Fig. 4 shows~~ Figs. 4A and 4B show an example of the configurations of a device interface unit of an IC testing apparatus.

(10) The paragraph [0050] from page 13, line 12 to page 13, line 13 has been amended as follows:

[0050] ~~Fig. 6 is~~ Figs. 6A-6C show an example of an ~~enlarged view~~ enlarged views of a section of a socket substrate 350.

(11) The paragraph [0063] from page 14, line 20 to page 14, line 25 has been amended as follows:

[0063] At the both ends of each internal layer wiring pattern 24, one of these is connected with the through hole 23 and the other is connected with the SVH 51, and the wiring between the electrode pads 21 and 22 corresponding to the lower surface is configured by the ~~SVH 5~~ SVH 51, the internal layer wiring pattern 24 and the through hole 23.

(12) The paragraph [0064] from page 14, line 26 to page 15, line 3 has been amended as follows:

Appl. No. : 10/800,189
Filed : March 12, 2004

[0064] Fig. 1 shows the internal layer wiring pattern 24 schematically as three, and the SVH 51 is formed at the electrode pad 21 for connecting the device under test 40 ~~in~~ with two of these, the SVH 51 is formed at the electrode pad 22 for connecting the connector 15 ~~in the rest one~~ with the rest. Which of both ends of the internal layer wiring pattern 24 and the SVH 51 will be provided at is properly decided for example in considering the wiring position of pins of the internal layer wiring pattern 24 or the number of the electrode pads 21 at the connection side of the device under test 40.

(13) The paragraph [0067] from page 15, line 17 to page 15, line 23 has been amended as follows:

[0067] Fig. 2 shows another embodiment of the DUT mounting board according to the present invention, wherein for example a resistor needs to be mounted on a part of the internal layer wiring pattern 24, and the SVH 51 is provided on the way of the internal layer wiring pattern 24. In Fig. 2, a numeral 53 shows a device such as a resistor. The device 53 is mounted on a pair of electrode pads 54 in which a pair of the SVH 51 ~~is~~ are formed.

(14) The paragraph [0070] from page 16, line 6 to page 16, line 12 has been amended as follows:

[0070] Although each of the DUT mounting boards 50, 55 and 56 described above ~~are things~~ is called a performance board in

Appl. No. : 10/800,189
Filed : March 12, 2004

regard to the device interface unit 3 of the IC testing apparatus shown in Fig. 14, the structure of the device interface unit 3 is not limited to the structure shown in Fig. 14, and other configuration may be used according to the use and purpose of the IC testing apparatus.

(15) The paragraph [0071] from page 16, line 13 to page 16, line 15 has been amended as follows:

[0071] ~~Fig.~~ Figs. 4A and 4B show another example of the configuration of the device interface unit 3 with the test head 2, hereinafter the configuration will be described briefly.

(16) The paragraph [0078] from page 17, line 16 to page 17, line 24 has been amended as follows:

[0078] Fig. 5 shows an example of the DUT mounting board, and an example of the detailed configuration of the performance board 300. Fig. 5 is a cross-sectional view of the performance board 300. The performance board 300 has the same function and ~~the~~ configuration as the DUT mounting boards (50, 55, 56, and 57) described in relation to Fig. 1 to Fig. 4, and allows the electronic device 310 (the device under test 40) and the testing apparatus for testing the electronic device 310 to be electrically connected with each other.

(17) The paragraph [0080] from page 17, line 25 to page 18, line 5 has been amended as follows:

Appl. No. : 10/800,189
Filed : March 12, 2004

[0080] The IC socket 320 holds the electronic device 310, and allows each of pins of the electronic device 310 and each of pins of the performance board 300 to be electrically connected with each other. In addition, the socket substrate 350 holds the IC socket 320 on an upper surface of the socket substrate 350, and is electrically connected with the electronic device 310 via the IC socket 320. In addition, the socket substrate 350 is electrically connected with the testing apparatus 200 (cf. Fig. 10) via the connection unit ~~100 (cf. Fig. 10)~~ 100 (cf. Fig. 10).

(18) The paragraph [0085] from page 19, line 1 to page 19, line 5 has been amended as follows:

[0085] In addition, the socket substrate 350 is provided with the through hole for low frequency 374 across the plurality of layers, the through hole for high frequency 362, the single-sided hole for low frequency 360, the single-sided hole for high frequency 382, and the GND through hole ~~382~~ 384.

(19) The paragraph [0086] from page 19, line 6 to page 19, line 11 has been amended as follows:

[0086] The through hole for low frequency 374, the through hole for high frequency 362 and the GND through hole ~~382~~ 384 are an example of the through hole 23 described in relation to Fig. 1 to Fig. 4, and the single-sided hole for low frequency 360 and the single-sided hole for high frequency 382 are an

Appl. No. : 10/800,189
Filed : March 12, 2004

example of the SVH 51 described in relation to Fig. 1 to Fig. 4.

(20) The paragraph [0091] from page 20, line 17 to page 20, line 22 has been amended as follows:

[0091] The single-sided hole for high frequency 382, which is the SVH 51 described above, is electrically connected with the high frequency signal connector 370, and is ~~formed~~ extended from the lower surface, at which the high frequency signal connector 370 of the socket substrate 350 is provided, to an intermediate layer position not reaching the lower surface of the socket substrate 350.

(21) The paragraph [0092] from page 20, line 23 to page 21, line 8 has been amended as follows:

[0092] In addition, the through hole for high frequency 362 is electrically connected with the high frequency signal pin of the electronic device 310, and is formed to penetrate from the upper surface of the socket substrate 350 to the lower surface of the socket substrate 350. And, the high frequency signal wiring 380 is formed to be closer to the lower surface of the socket substrate 350 than a layer, at which the low frequency signal wiring 376 is formed, of the plurality of layers of the socket substrate 350, ~~allows~~ thereby allowing the single-sided hole for high frequency 382 and the through hole for high frequency 362 to be electrically connected with each other, and ~~transfers~~ transferring the test signals of

Appl. No. : 10/800,189
Filed : March 12, 2004

high frequency. The single-sided hole for high frequency 382 is not interrupted by the low frequency signal wiring 376 on its upper layer, and ~~besides~~ further, the single-sided hole for low frequency 360 is not interrupted by the high frequency signal wiring 380 on its lower layer, and therefore it is possible to obtain ~~an advantage capable of performing~~ pattern wiring with high density.

(22) The paragraph [0093] from page 21, line 9 to page 21, line 19 has been amended as follows:

[0093] By this configuration, it is possible to supply the test signals of high frequency to the electronic device 310. In addition, since the SVH is used as the single-sided hole for high frequency 382, it is possible to reduce the area of the stub part, which does not contribute to transferring the test signals, ~~so it is~~ which makes it possible to transfer the test signals with high accuracy. Further, by providing the single-sided hole for high frequency 382 more inwardly than the through hole for low frequency 374, it is possible to shorten the transfer route length of the test signals of high frequency and to transfer the test signals with high accuracy.

(23) The paragraph [0094] from page 21, line 20 to page 21, line 29 has been amended as follows:

[0094] In addition, the GND wiring 378, which is formed at the plurality of layers and is a ground surface having an entire solid surface formed at almost all surfaces of the GND

Appl. No. : 10/800,189
Filed : March 12, 2004

layer, is electrically connected with the GND through hole ~~382~~ 384, and is connected with the ground voltage via the GND through hole ~~382~~ 384. In addition, although Fig. 5 shows only one GND through hole ~~382~~ 384, a plurality of GND through holes ~~382~~ 384 is provided with a required pitch over all surfaces of the socket substrate. In addition, it is provided near the single-sided hole or the through hole such as the single-sided hole for high frequency 382.

(24) The paragraph [0095] from page 21, line 30 to page 22, line 5 has been amended as follows:

[0095] ~~Fig. 6 is~~ Figs. 6A-6C show an example of an enlarged view of a section of the socket substrate 350. As described above, the socket substrate 350 is provided with the GND wiring 378 at a plurality of layers in the depth direction, and the signal wiring of the low frequency signal wiring 376 or the high frequency signal wiring 380 ~~becomes the~~ is designed to have a characteristic impedance of for example 50Ω ~~while~~ when formed at the layer between the GND wirings 378.

(25) The paragraph [0097] from page 22, line 18 to page 22, line 27 has been amended as follows:

[0097] Fig. 6A shows an example of an enlarged view near the through hole for low frequency 374. In the present embodiment, the GND wiring 378 in regard to each of the GND layers is formed in order not to exist in a circular area, which is a ~~concentric~~ circle concentric with the through hole

Appl. No. : 10/800,189
Filed : March 12, 2004

for low frequency 374 and its diameter is larger than the through hole for low frequency 374. In the present embodiment, the GND wiring 378 in regard to each of the GND layers is formed in order not to exist in a circular area having the diameter of 0.75 mm, which is a ~~concentric~~ circle concentric with the through hole for low frequency 374.

(26) The paragraph [0098] from page 22, line 28 to page 23, line 5 has been amended as follows:

[0098] Fig. 6B shows another example of an enlarged view near the through hole for low frequency 374. In the present embodiment, the GND wiring 378 in regard to each of the GND layers is formed in order not to exist in a circular area, of which the diameter is larger than the example described in regard to Fig. 6A. In the present embodiment, the GND wiring 378 is formed in order not to exist in a circular area having the diameter of 1.25 mm, which is a ~~concentric~~ circle concentric with the through hole for low frequency 374.

(27) The paragraph [0099] from page 23, line 6 to page 23, line 13 has been amended as follows:

[0099] By these configurations, the distance between the through hole for low frequency 374 and the GND wiring 378 can be broaden, consequently, the capacitance that occurs between the through hole for low frequency 374 and the GND wiring 378 can be reduced, and thus it is possible to transfer the test signals with high accuracy. In addition, it is ~~desirable~~

Appl. No. : 10/800,189
Filed : March 12, 2004

preferable to have the same configuration as Fig. 6B in regard to the vicinity of the through hole for high frequency 362.

(28) The paragraph [0103] from page 24, line 6 to page 24, line 17 has been amended as follows:

[0103] As shown in Fig. 6C, by allowing the distance in a horizontal direction between at least a part of a plurality of upper layer GND wirings 378-2 and the single-sided hole for high frequency 382 to be larger than the distance in a horizontal direction between the lower layer GND wiring 378-1 and the single-sided hole for high frequency 382, it is possible to reduce the capacitance in regard to the stub part. That is, supposing the diameter of a circular shape is x, in which the lower layer GND wiring 378-1 is not formed, in regard to an area, where the single-sided hole for high frequency 382 is formed, of a layer where the lower layer GND wiring 378-1 is designed to be formed, ~~is x~~, it is preferable that x is smaller than 1.25 mm.

(29) The paragraph [0104] from page 24, line 18 to page 24, line 30 has been amended as follows:

[0104] In addition, it is preferable that the distance in a horizontal direction between one of a plurality of the upper layer GND wirings 378-2 nearest to the high frequency signal wiring 380 and the single-sided hole for high frequency 382 is approximately the same as the distance in a horizontal direction between the lower layer GND wiring 378-1 and the

Appl. No. : 10/800,189
Filed : March 12, 2004

single-sided hole for high frequency 382, and is smaller than the distance in a horizontal direction between the other of the upper layer GND wirings 378-2 and the single-sided hole for high frequency 382. By this configuration, it is possible to reduce the influence of the noise in regard to the high frequency signal wiring 380 ~~and besides to reduce~~ in addition to reducing the capacitance in regard to the stub part.

(30) The paragraph [0105] from page 25, line 1 to page 25, line 10 has been amended as follows:

[0105] Fig. 7 shows an example of the result of measuring reflection components that occur in regard to the example shown in ~~Fig. 6~~ Figs. 6A, 6B and 6C, respectively. In Fig. 7, the horizontal axis represents the reflection component, and the vertical axis represents the position where the reflection occurs. In addition, (a) in Fig. 7 represents the magnitude of the reflection component in regard to the example shown in Fig. 6A, (b) represents the magnitude of the reflection component in regard to the example shown in Fig. 6B and (c) represents the magnitude of the reflection component in regard to the example shown in Fig. 6C.

(31) The paragraph [0106] from page 25, line 11 to page 25, line 18 has been amended as follows:

[0106] As shown in Fig. 7, in regard to the example shown in Fig. 6A, the reflection component of -19.5% occurs against the test signals in the stub part of the single-sided hole.

Appl. No. : 10/800,189
Filed : March 12, 2004

Meanwhile, in regard to the example shown in Fig. 6B, the reflection component of -12.5% occurs against the test signals, ~~so we can find~~ it is understood that the reflection component is reduced by broadening the distance between the single-sided hole and the GND wiring 378.

(32) The paragraph [0106] from page 25, line 19 to page 25, line 24 has been amended as follows:

[0107] In addition, in regard to the example shown in Fig. 6C, the reflection component of -7.2% occurs against the test signals, ~~so we found~~ it is understood that the reflection component is further reduced by forming the GND wiring 378 as shown in Fig. 6C by using the single-sided hole (SVH) as an alternative to the through hole.

(33) The paragraph [0109] from page 26, line 3 to page 26, line 15 has been amended as follows:

[0109] Moreover, in the present embodiment, in regard to each of the GND layers, the diameter of the circular area where the GND wiring 378 is not formed is set to be 1.5 mm. Although it is desirable that the diameter of the circular area is as large as possible while the GND layer adjacent to the high frequency signal wiring 380 is removed, the size is limited because the GND through hole ~~382~~ 384 is formed over all surfaces of the socket substrate 350 as described above. That is, it is preferable that the diameter of the circular area, where the GND wiring 378 in regard to each of the GND

Appl. No. : 10/800,189
Filed : March 12, 2004

layers is not formed, is formed as large as possible in a range in order not to overlap by having a predetermined margin to the GND through hole ~~382~~ 384 formed over all surfaces of the socket substrate 350.

(34) The paragraph [0111] from page 26, line 24 to page 27, line 2 has been amended as follows:

[0111] In this case, the probe card 400 has the same function and configuration as those of the performance board 300. In the present embodiment, the probe card 400 has, in regard to the configuration of the performance board 300, a plurality of probe pins 364 electrically connected with the terminals of the electronic device 310 as an alternative to the IC socket 320. In this case, the socket substrate 350 is functioning as a probe substrate for holding the probe pins 364. In addition, ~~if~~ when using the probe card 400, the electronic device 310 ~~can test in the shape of an unpacked wafer~~ be tested in the form of a wafer without a package.

(35) The paragraph [0113] from page 27, line 7 to page 17, line 2 has been amended as follows:

[0113] Fig. 10 depicts ~~a test of~~ an overall system configuration for testing an electronic device. As described in Fig. 4, the electronic device 310 to be tested is placed on the performance board 300 which is an example of the DUT mounting board. The performance board 300 has the same function and configuration as the performance board 300

Appl. No. : 10/800,189
Filed : March 12, 2004

described in regard to Fig. 5 to Fig. 8. The testing apparatus 200 generates the test signals for testing the electronic device 310 such as a semiconductor device. In addition, the connection unit 100 connects the testing apparatus 200 and the performance board 300 electrically, and supplies the test signals to the electronic device 310 placed on the performance board 300.

(36) The paragraph [0114] from page 27, line 18 to page 27, line 27 has been amended as follows:

[0114] The testing apparatus 200 generates the test signals having a desired pattern corresponding to the electronic device 310, and supplies them to the electronic device 310 via the connection unit 100 and the performance board 300. In addition, the testing apparatus 200 receives the output signals ~~outputted~~ from the electronic device 310 via the connection unit 100 and the performance board 300. The testing apparatus 200 generates the expected signals corresponding to the electronic device 310, compares them with the output signals received and judges the ~~quality~~ pass/fail of the electronic device 310.

(37) The paragraph [0115] from page 27, line 28 to page 28, line 6 has been amended as follows:

[0115] The performance board 300 has a socket substrate 350, an IC socket 320, a plurality of performance-board-side connectors 330 and a plurality of signal wirings ~~40~~ 340. The

Appl. No. : 10/800,189
Filed : March 12, 2004

performance board 300 holds the plurality of performance-board-side connectors 330 on a surface facing the connection unit 100, and holds the IC socket 320 on an upper surface ~~of the opposite surface~~ opposite to that facing the connection unit 100. The performance-board-side connectors 330 are, for example, the high frequency signal connector 370 and the low frequency signal connector 372 described in regard to Fig. 5.

(38) The paragraph [0117] from page 28, line 10 to page 28, line 21 has been amended as follows:

[0117] The plurality of performance-board-side connectors 330 receives the test signals, which are supposed to be supplied to the electronic device 310, from the testing apparatus ~~200~~ via 200 via the connection unit 100, and supplies them the IC socket 320 via the signal wiring ~~40~~ 340. In addition, it receives the output signals of the electronic device 310 and supplies them to the connection unit 100. Here, the signal wiring ~~40~~ 340 corresponds to the high frequency signal wiring 380, the single-sided hole for high frequency 382, the through hole for high frequency 362, the through hole for low frequency 374, the low frequency signal wiring 376 and the single-sided hole for low frequency 360, which have been described in regard to Fig. 5.

(39) The paragraph [0118] from page 28, line 22 to page 29, line 4 has been amended as follows:

Appl. No. : 10/800,189
Filed : March 12, 2004

[0118] In the present embodiment, the performance-board-side connector 330c provided near the IC socket 320 receives the test signals of high frequency among the test signals to be supplied to the electronic device 310, and is functioning as the high frequency signal socket 370 for supplying the test signals to the IC socket 320. In addition, the performance-board-side connectors (330a and 330b), which are provided at positions farther from the IC socket 320 than the performance-board-side connector 330c, receive the signals having the lower frequency than the test signals supplied to the IC socket 320 by the performance-board-side connector 330c from the testing apparatus 200 via the connection unit 100, and are functioning as the low frequency signal connector 372 for supplying the test signals to the IC socket 320.

(40) The paragraph [0121] from page 29, line 24 to page 30, line 2 has been amended as follows:

[0121] The connection unit 100 has a holding substrate 30, a plurality of connection-unit-side connectors 64 and a plurality of connection cables (66a, 66b and 66c). The holding substrate 30, which is a ~~structure~~ structural body for fixing a plurality of connection-unit-side connectors 64 at a predetermined position, is provided ~~to surface on a side~~ facing the performance board 300. In addition, the holding substrate 30 holds a plurality of connection-unit-side

Appl. No. : 10/800,189
Filed : March 12, 2004

connectors 64 in regard to a surface facing the performance board 300.

(41) The paragraph [0122] from page 30, line 3 to page 30, line 12 has been amended as follows:

[0122] A plurality of connection-unit-side connectors (64a, 64b and 64c) is provided on the holding substrate 30 to be attachable to and detachable from the holding substrate 30 in order to be reused in common, and is connected with the performance-board-side connectors (330a, 330b and 330c) provided in the performance board 300. For example, the plurality of connection-unit-side connectors 64 can be commonly used ~~as it is~~ by changing ~~to~~ the holding substrate 30 corresponding to a position of the performance-board-side connector 330 in regard to the performance board 300 to be connected.

(42) The paragraph [0128] from page 31, line 21 to page 31, line 25 has been amended as follows:

[0128] In addition, the holding substrate 30 has a positioning member 42 for holding the connection-unit-side connector 64 at each of the arrangement positions 34. Due to this, the arrangement position 34 is ~~designated~~ used to change the connection-unit-side connector 64.

(43) The paragraph [0129] from page 31, line 26 to page 32, line 10 has been amended as follows:

Appl. No. : 10/800,189
Filed : March 12, 2004

[0129] In addition, the holding substrate 30 has a penetrating hole 32, of which the size is fit for passing the connection-unit-side connector 64, at each of the arrangement positions 34. The penetrating hole 32 is provided across a surface facing the testing apparatus 200 from a surface facing the performance board 300 of the holding substrate 30. If the mounting position of the connection-unit-side connector 64 is changed, the connection-unit-side connector 64 is taken out through the testing apparatus 200 via the penetrating hole 32, and is mounted through the performance board 300 via the penetrating hole 32 corresponding to the arrangement position 34 to which it is supposed to be moved. Due to this, even though the connection ~~cables~~ cable 66 (cf. Fig. 10) is fixed to the connection-unit-side connector 64, it is possible to move the connection-unit-side connector 64 to a desired position. Therefore, there is a great advantage to be able to reuse the connection-unit-side connectors 64.

(44) The paragraph [0130] from page 32, line 11 to page 32, line 23 has been amended as follows:

[0130] In addition, the penetrating holes 32 may be provided across a plurality of arrangement positions 34. That is, the opening parts of the penetrating holes 32 may be provided across a plurality of arrangement positions 34. For example, the opening part of the penetrating hole 32-1 and the opening part of the penetrating hole 32-4 shown in Fig. 11 may

Appl. No. : 10/800,189
Filed : March 12, 2004

be connected to be one penetrating hole. In this case, if the connection-unit-side connector 64 is moved from the arrangement position 34-1 to the arrangement position 34-4, it is possible to change the position of the connection-unit-side connector 64 easily because the connection cables 66 can pass through the penetrating hole from the arrangement position 34-1 to the arrangement position 34-4.

(45) The paragraph [0132] from page 32, line 29 to page 33, line 20 has been amended as follows:

[0132] Moreover, in the present embodiment, the cross-sections of the IC socket 320 and the connection-unit-side connector 64 in regard to a surface approximately parallel to the holding substrate 30 are rectangular. In the radial direction, if the connection-unit-side connector is held at the arrangement position 34 nearest to the placement position 312 of the IC socket 320, it is preferable that the holding substrate 30 holds the connection-unit-side connector 64 in order that the long side of the section of the connection-unit-side connector 64 faces the nearest side of the section of the IC socket 320. For example, the positioning member 42 provided at the arrangement position 34-4 holds the connection-unit-side connector 64 in order that the long side of the connection-unit-side connector 64 is approximately parallel to the nearest side of the section of the IC socket 320. A plurality of terminals are provided in the connection-

Appl. No. : 10/800,189
Filed : March 12, 2004

unit-side connector 64 along the long side direction, ~~so if~~
thus when the connection-unit-side connector 64 is provided
near the IC socket 320 to which the signals of high frequency
are supposed to be supplied, it is possible to set the
distance between each of the terminals and the pins of the
electronic device 310 to be approximately the same, and thus
it is possible to supply the signals to the electronic device
310 with good transfer ~~characteristic~~ characteristics.

(46) The paragraph [0133] from page 33, line 21 to page 33,
line 28 has been amended as follows:

[0133] In addition, the holding substrate 30 has a small
diameter performance board positioning member 46 and a large
diameter performance board positioning member 44. For
example, the small diameter performance board positioning
member 46 and the large diameter performance board positioning
member 44 may be a plurality of protrusions ~~for fitting~~ which
are provided on a surface of the holding substrate 30 facing
the performance board 300 for fitting with the performance
board 300.

(47) The paragraph [0136] from page 34, line 18 to page 34,
line 25 has been amended as follows:

[0136] The connection-unit-side connector 64 ~~is~~ has a
groove 12 for being engaged with the positioning member 42 on
a surface facing the holding substrate 30. By engaging the
positioning member 42 and the groove 12 of the connection-

Appl. No. : 10/800,189
Filed : March 12, 2004

unit-side connector 64, it is possible to hold the connection-unit-side connector 64 on the holding substrate 30. In addition, the positioning member 42 may be a groove in shape, while the connection-unit-side connector 64 may ~~be~~ have a protrusion ~~in shape~~ to engage with the positioning member 42.